

Remarks

In response to the Office Communication mailed April 7, 2005 from the United States Patent and Trademark Office, claims 1, 23, 24, 28, 30, 32, 34, 36, and 40 are herein amended, and claims 2-6, 13-17, 42-44, 47-50, and 52-79 are herein canceled. A fragment of claim 27 originally filed as a duplicate version of claim 27 with the application as filed, is here deleted from the claims.

The Office Communication on page 2 points out that claim 1 had been "deleted" in a preliminary amendment, and was not thereby canceled. Further as claim 2 had not been amended to incorporate the limitations of claim 1, therefore examination is based on claim 1 as if it were still pending.

Accordingly, claim 1 is here reinstated, and as here amended is directed to the subject matter of the elected group of the claims, viz., claim 1 as here amended incorporates the subject matter of claim 2 which has been canceled. Pending claims 7-12 and 18-22 that depend directly from claim 1 are also thereby amended to incorporate the subject matter of claim 1 as here amended and claim 2.

Claims 23, 24, 28, 30, 32, 34, 36, and 40 are here similarly amended and are thereby directed to the subject matter of the elected restriction group. Applicants have reviewed the pending claims, and have advised applicants' representative that the compounds that remain in the claims as here amended are properly within the elected restriction group. Claims 28-30 and 34 are further amended herein to correct clerical errors.

Support for the amendments is found in claims as originally filed. No new matter is added by the present amendment. Applicants reserve the right to prosecute claims having the scope of claims as originally filed in this application, or in another application having the same priority date.

Rejections in view of U.S. patent number 6,372,743

In the Office Communication on page 3, ¶1, claims 1, 2, 7-12, 18-22 and 37-41 are rejected under 35 U.S.C. §101 in view of U.S. patent number 6,372,743 (" '743").

Further, the Office Communication on page 3, ¶2 rejects claims 23-24, 28-36, 45, 46 and 51 under the judicially created doctrine of double patenting in view of '743.

Claim 2 is here canceled and its subject matter incorporated into claim 1, therefore rejection of claim 2 is moot. Claims 7-12 and 18-22 depend directly from claim 1, and are

therefore identically amended as claim 1 to include the subject matter of claim 2.

Applicants assert that upon entry of the present amendment, the subject matter of the claims as here amended is different in scope and sufficiently distinguished from the subject matter of the claims in '743.

Independent claims 23 and 24 have been amended to conform to the restriction group and have the changes outlined below. Claims 25-36, 45, 46 and 51 that depend indirectly from claim 24 and incorporate all of the subject matter of claim 24 are identically amended.

Rejection of claims 1, 7-12, 18-22 and 37-41 is further traversed for reasons below.

As a preliminary matter, independent claims 1, 23, and 24 of the present application are directed to core molecules having substituents at each of specific locations or positions on the core, the nature of which as described in the claims as here amended is substantially different from that in claims of '743.

For example in certain embodiments, each of R^4 and/or R^5 in the present claims is trimethylsulfonyl. In contrast, trimethylsulfonyl is not a substituent at any position in any claims in '743, therefore the compounds that are the subject matter of pending claims 1, 23, and 24, and claims dependent on claims 1, 23, and 24, differ from the compounds in claims of '743 for at least this reason.

In a further example, R^2 in claims of '743 and in claims of the present application differ as follows. In '743:

R^2 is H; C_1 - C_6 alkyl which optionally forms a C_3 - C_6 aminocarbocycle or a C_2 - C_5 aminoheterocycle with A or B, each of which is optionally substituted with R^7 , C_3 - C_{10} cycloalkyl, or (C_3 - C_{10} cycloalkyl) C_1 - C_6 alkyl; or R^2 and R^6 jointly with the 2 nitrogen atoms to which they are bound, form a C_2 - C_5 aminoheterocycle optionally substituted with R^7 , or R^2 and A jointly form a C_3 - C_6 aminocarbocycle or a C_2 - C_5 aminoe heterocycle optionally substituted at with R^7

while R^2 in claims 1 and 23 of the present application as here amended is merely H. For this reason also, compounds that are the subject matter of the present claims are not the same structures as compounds of '743.

Position A or B in various embodiments of '743 joins with R^2 and forms a heterocycle ring or an aminocarbocycle. Similarly in '743, R^2 and R^6 join with 2 nitrogen atoms to form an aminoheterocycle.

In contrast, A, B and R^2 as in independent claims 1, 23 and 24 and dependent claims 28 of the present application as here amended, and claims that depend from them directly or indirectly,

are not directed to any of these structures.

An embodiment of substituents at R³ in claims of the present application includes trimethylsulfonyl. In contrast, claims in the '743 patent are not directed to trimethylsulfonyl at R³. Further, R³ in claims of the present application includes C₁-C₆-alkyl-OR⁷. In contrast, claims in the '743 patent are not directed to R³ which is C₁-C₆-alkyl-OR⁷.

R⁴ in embodiments of claim 1 of the present application is trimethylsulfonyl as described above. Similarly R⁵ is trimethylsulfonyl in the claims 1, 23, and 24 of the present application, a substituent which is lacking from claims of '743. In contrast, claims of '743 are not directed to trimethylsulfonyl.

Substituents at R⁵ in claim 1 of '743 of are unsubstituted C₂-C₉ heterocycloalkyl containing one, two, or three O, S, or N atoms. This is not the subject matter of claim 1 in the present application.

Further, R⁵ substituents in claim 1 of the present application, beginning with terms "C₃-C₁₀ cycloalkyl or aryl", include trimethylsulfonyl and CONR⁸R⁹. In contrast, R⁵ in claims of '743 lacks these compounds.

Position R⁴ in claims 9 and 10 of the present application is trimethylsulfonyl. The corresponding claims of '743 lack trimethylsulfonyl at R⁴.

In independent claim 21 of '743, A and R² join to form a C₃-C₆ aminocarbocycle or a C₂-C₅ aminoheterocycle. Further, in claim 21 of '743, B joins with R² to form a C₃-C₆ aminocarbocycle, which is optionally substituted at each atom with R⁷. None of the claims of the present application as here amended are directed to this subject matter.

Additionally, claim 24 as here amended and as originally filed in the present application, is directed in certain embodiments to R⁵ in the subsection beginning, "C₁-C₆ alkyl each of which is substituted...", and includes structures not found in corresponding claim 21 of '743, e.g., SO₂NR⁸R⁹. In contrast, claim 21 of '743 contains species of substituted C₁-C₆ alkyl, such as NR¹¹COR², and others not found in the present claim 24.

R⁶ in claim 21 of '743 joins with R² to form a C₂-C₅ aminocarbocycle with two N atoms; and R² in claim 22 of '743 joins with A to form a 3 to 8 membered heterocyclic ring optionally substituted at each carbon with R^{7a}; or joins with B to form a 4 to 10 membered heterocyclic ring optionally substituted at each carbon with R⁷. No claims of the present application are directed to this subject matter.

B in claim 22 of '743 joins with R⁵ to form a 4 to 7 membered heterocyclic ring, which is

optionally substituted at each atom with R^{7a}. Further, R⁶ in claim 22 of '743, joins with R² to form with the two nitrogens to which they are bound a C₂-C₅ aminocarbocycle optionally substituted at each occurrence by R⁷. No corresponding claims of the present application are directed to this subject matter.

Further, claim 27 of the present application is directed to structures at position R⁴ that are C₂-C₄ alkenyl, CF₃, CHF₂, CH₂CF₃, OMe, OCF₃, OEt, OPr, OiPr, C₂-C₄ alkyl OH.

In contrast, corresponding claim 25 of '743 is not directed to this subject matter, rather, R⁴ in '743 is directed to a different set of structures: (C₃-C₅ cycloalkyl), C₁-C₂ alkyl, C₂-C₆ alkenyl, C₁-C₂ fluoroalkyl, OR⁷, C₁-C₃ alkyl-OR⁷, NR⁸R⁹, C₁-C₆ alkyl-NR⁸R⁹, CONR⁸R⁹, C₁-C₃-alkyl-CONR⁸R⁹, and COOR⁷.

Claim 28 of the present application depends directly from claim 27. Comparison of claim 28 herein with corresponding claim 26 of '743 shows that the latter is directed to B and R⁵ joining to form a 5 to 7 membered heterocyclic ring, which is not the subject matter of claim 28 of the present application.

Claims 29-36, 45, 46 and 51 depend directly or indirectly from claim 24 and are not the same as any of the claims of '743 for the reasons that claim 24 is not the same.

For the reason that the claims are substantively different and by virtue of amendments herein, rejection of claims for double patenting in view of '743, either under 35 U.S.C §101 or under the judicially created doctrine, can properly be withdrawn, which is respectfully requested.

Rejections in view of U.S. patent number 6,476,038

In the Office Communication on page 4, ¶3, claims 1, 2, 7-12, 18-41, 45, 46 and 51 are rejected under the judicially created doctrine of double patenting in view of U.S. patent number 6,476,038 (“‘038”).

Claim 2 is here canceled and the subject matter of this claim incorporated into claim 1, therefore rejection of this claim is moot. Remaining claims as here amended are directed to the subject matter of the elected restriction group as described above.

Applicants assert that claims of '038 differ substantially from the present claims as here amended. Claims of '038, for example, are directed to a structure modifying the core, by A and R² jointly forming a C₃-C₆ aminocarbocycle, which is optionally substituted with R⁷. However this structure is not found in the present claims as here amended.

Comparisons of claims as here amended with claims of '038 reveal so many further

differences, that one of ordinary skill examining the facts of the core and its directly bonded substituent structures would have concluded, at the time the present application was filed, that none of the present claims as here amended are identical to any of the claims in '038, and even further, that substantial differences in chemical structures are found throughout the claims and within the claims.

Comparison of claims of '038 and the present claims show, regarding substituents of the core molecules of claims 1, 9, 10 and 11 of '038, many substituents that are lacking in the core molecules of the present claims as here amended. See '038 column 57, lines 32-38; column 59, lines 58-64; column 61, lines 44-51; and column 63 lines 27-29.

Further, the core molecule of all of the claims of '038 is acylated or otherwise derivatized to form a prodrug. The core of the present claims as here amended, in contrast, lacks such derivatization, and therefore is directed to different subject matter than claims of '038.

In claim 1 of '038, R⁵ substituents are H, C₁-C₆ alkyl, C₃-C₁₀ cycloalkyl, (C₃-C₁₀ cycloalkyl) C₁-C₆ alkyl, C₂-C₆ alkenyl and C₂-C₆ alkynyl. In claim 9 of '038, R⁵ is H. In claims 10 and 11 of '038, R⁵ is merely H, C₁-C₆ alkyl, C₃-C₁₀ cycloalkyl, (C₃-C₁₀ cycloalkyl) C₁-C₆ alkyl.

In contrast, in claims of the present application as here amended, R⁵ is selected from, for example, a C₁-C₆ alkyl substituted with 1 to 5 groups such as halo, haloalkyl, oxo, cyano; or, for example, aryl(C₁-C₆ alkyl), or heteroaryl(C₁-C₆ alkyl), optionally substituted with 1 to 5 groups, including C₁-C₆ alkyl, C₃-C₁₀ cycloalkyl, C₃-C₁₀ cycloalkenyl, halogen, trifluoromethylsulfonyl, etc., or aryl or heteroaryl optionally substituted with 1 to 5 substituents such as halogen, C₁-C₆ alkyl, haloalkyl, cycloalkenyl, aryl, heteroaryl, heterocycloalkyl, 3-, 4-, or 5-(2-oxo-1,3-oxazolidinyl), etc. For a complete list, see herein from the bottom of page 4 to top of page 6, *supra*, for substituents of R⁵ in claim 1 of the present application as here amended.

Other exemplary differences include, in the core molecules of claims of the present application, features that are lacking in the molecules of the claims of '038. The present claims, include, for example, substituents absent from '038 such as OR⁷ and NR⁸R⁹. See the present application as published, claim 1, page 50 left column. Further substantial differences can be found in any of the substituents throughout the claims.

From these examples it is clear that '038 includes subject matter lacking in the present claims, and that the present claims include subject matter lacking in '038, i.e., the claims are substantively different. These facts show that one of ordinary skill, examining both the cores and

the substituents of the core structures of '038 claims, and the claims as here amended, would recognize that the structures are not the same.

Applicants respectfully request withdrawal of this rejection.

Summary

On the basis of the foregoing amendments and reasons, Applicants respectfully submit that the pending claims are in condition for allowance, which is respectfully requested.

If there are any questions regarding these remarks, the Examiners are invited and encouraged to contact Applicants' representative at the telephone number provided.

Respectfully submitted,

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A handwritten signature in cursive script, reading "Sonia K. Guterman", is written over a horizontal line.

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Dated: June 30, 2005